REMARKS

Claims 3-22 and 31 are pending in the application.

Claims 3-22 and 31 stand rejected.

Rejection of Claims Under 35 U.S.C. § 103

Claims 3, 6-10, 14-22, and 31 stand rejected under 35 U.S.C. § 103(a) as purportedly being unpatentable over U.S. Patent No. 7,366,730, issued to Greenfield et al. ("Greenfield") and further in view of U.S. Patent Application Publication No. 2002/0091681, naming Cras as an inventor ("Cras"). Applicants respectfully traverse these rejections.

In order for a claim to be rendered invalid under 35 U.S.C. §103, the subject matter of the claim as a whole would have to be obvious to a person of ordinary skill in the art at the time the invention was made. *See* 35 U.S.C. §103(a). This requires: (1) the reference(s) must teach or suggest all of the claim limitations; (2) there must be some teaching, suggestion or motivation to combine references either in the references themselves or in the knowledge of the art; and (3) there must be a reasonable expectation of success. *See* MPEP 2143; MPEP 2143.03; *In re Rouffet*, 149 F.3d 1350, 1355-56 (Fed. Cir. 1998).

Greenfield Fails to Teach Constructing a Multidimensional Database Query

Independent claims 3, 19, and 21 each contain limitations of substantially the following form:

> using the relational-to-multidimensional mapping together with relational/multidimensional equivalency logic to construct a multidimensional database query based on the received relational database query.

See, *e.g.*, claim 3 (emphasis added). Independent claim 31 contains a similar limitation directed to "converting the received relational database query into … a multidimensional database query against the multidimensional data source." Applicants respectfully submit that neither the cited sections of Greenfield nor Cras, alone or in combination, provides disclosure of at least these limitations.

The Office Action cites to the following portion of Greenfield as purported disclosure of the above-quoted limitations:

> An OLAP API to a relational database can recognize the views and, hence, the type and form of data returned. Thus, an OLAP API can generate an appropriate SQL statement for querying OLAP objects.

Greenfield 9:12-15 (cited at Office Action, p.4). The Office Action purports that the generated SQL statement will query an OLAP object, thus making the SQL statement a multidimensional database query. Such a suggestion ignores the context of the cited portion of Greenfield. In the context of the cited section of Greenfield, the SQL query of OLAP objects is directed to a relational database, not a multidimensional database. Context is provided by the text surrounding the cited portion of Greenfield:

> The techniques described herein provide support of extended OLAP schemas in RDBMS storage. One supporting method involves the use of SQL views which map a native relational schema model to a schema

> model that an OLAP API can understand. An OLAP API to a relational database can recognize the views and hence, the type and form of data returned. Thus, an OLAP API can generate an appropriate SQL statement for querying OLAP objects. For example, using solved cubes, an OLAP API can perform operations on a rollup cube, as provided, without generating and executing a GROUP BY/ROLLUP clause.

Greenfield, 9:8-18 (emphasis added). Thus, the OLAP object accessed by the generated SQL query is sent to a relational database management system (RDBMS) not a multidimensional data source.

The last sentence of the above quoted portion of Greenfield explains why the query is not to the multidimensional data source. The OLAP API operations are performed on a registered solved cube (information which has been extracted from the multidimensional database [discussed below]) which precludes the need to query the multidimensional data. Greenfield mentions that GROUP BY/ROLLUP operations are avoided. These operations are performed on a multidimensional data source. Thus, what the Office Action suggests represents a generated multidimensional query is instead a SQL query to a RDBMS, which contains multidimensional data in the form of a solved cube. The querying of data from a multidimensional source that is stored within a relational database is not the same as a multidimensional query to a multidimensional database.

Greenfield defines a solved cube as follows:

> A solved cube is an abstract construct likened to a view or a table on relational data and contains not only base data, but also aggregated measure data that is base data that has been processed across multiple levels of a hierarchical dimension.

Greenfield, Abstract. In other words, a solved cube is purportedly a relational table having data culled from across multiple levels of a multidimensional data source into a

flattened format compatible with a RDBMS. Once the solved cube is registered with the RDBMS, access to data in the solved cube is purportedly accomplished using the RDBMS. A user does not query the multidimensional data source directly. *See* Greenfield, Abstract ("Performing operations on multidimensional data managed by a relational database system [is] facilitated by registration of solved cubes with a RDBMS.").

Greenfield introduces solved cubes so that multidimensional queries can purportedly be avoided. "A solved cube is introduced in a RDBMS by communicating information about the solved cube to a database server so that it can perform operations on the solved cube." Greenfield 4:21-23 (emphasis added). When the operations are performed on the solved cube (within the RDBMS) they are not performed on the multidimensional data source from which the solved cube was generated. Furthermore, when the RDBMS with the solved cube is queried, it is queried with relational SQL queries, not multidimensional database queries. Greenfield 9:8-18. Thus, it can not be said that the cited portions of Greenfield teach or suggest the construction of a multidimensional database query, much less one based on a received relational database query.

The Office Action does not cite Cras for the proposition that it teaches the construction of a multidimensional database query based on a received relational database query. Thus, neither Greenfield nor Cras, alone or in combination, teach or suggest these claim limitations of independent claims 3, 19, 21, and 31.

Cras Does Not Teach Graphical Manipulation of a Virtual Relational Table

Independent claims 3, 19, 21, and 31 each contain limitations of substantially the following form:

> forming the relational database query against the relational model of the multidimensional data source using a graphical user interface, wherein the graphical user interface
>
> displays a presentation layer representation of the virtual relational table corresponding to the multidimensional data source, and
>
> enables pointer-driven selection for database query of one or more tables and columns of data stored in the multidimensional data source and represented by the displayed presentation layer.

See, *e.g.*, claim 3 (emphasis added). Applicants respectfully submit that neither Greenfield nor Cras, alone or in combination, provides disclosure of at least these limitations.

The Office Action cites Cras as purported disclosure of "using a graphical user interface, wherein the graphical user interface displays a presentation layer representation of the "information" corresponding to the multidimensional data source." Office Action, p. 6 (emphasis added). As an initial matter, the Office Action abstracts away the claimed "virtual relational table" of the claim and reduces it to simply "information." The Office Action then analogizes this substituted "information" to Cras's "objects." Applicants respectfully submit that Cras's "objects" are not analogous to the claimed virtual relational table.

Cras defines an "object" as follows:

> To create a report specification comprising, for example, XML tags, a user manipulates graphical objects as presented to a user at a graphical user

> interface (GUI), where the objects represent the available data at the datasource.

Cras, ¶ [0075] (emphasis added). Thus, Cras's "object" is representative of the available data at the data source. A representation of a data object is not the same as a virtual relational table. A virtual relational table is comprised of a collection of rows and columns where columns are comprised of dimensions and rows are comprised of data filters. *See* Application, ¶ [0035]. A virtual relational table is not merely representative of available data at a data source, as defined by Cras. Thus, Cras can not be said to teach or suggest the display of a presentation layer representation of the virtual relational table because it only graphically depicts "objects," not virtual relational tables.

As for Greenfield, the Office Action concedes that it does not teach this limitation. *See* Office Action, p. 6. Since Greenfield and Cras are cited for different propositions, their combination will do nothing to support each others' purported disclosures. In other words, any failings within one reference cannot be shored up by the other reference. Thus, neither Cras nor Greenfield, alone or in combination, teach or suggest the above-quoted claim limitations of independent claims 3, 19, 21, and 31.

There is No Motivation or Suggestion to Combine Greenfield and Cras

Not only do Greenfield and Cras fail to provide disclosure of all the limitations of the independent claims, but a person of ordinary skill in the art would have no suggestion or motivation to combine Greenfield and Cras. A combination of Greenfield and Cras would either produce a nonfunctional system (Cras added to Greenfield) or an unimproved system with greater overhead (Greenfield added to Cras). Greenfield is

directed to presenting RDBMS access to multidimensional data via solved cubes; Cras is directed to creating analytical reports from either multidimensional or relational data. Cras, ¶ [0009].

The cited sections of Greenfield do not consider what can be done with an analytical report such as that produced by Cras. The report generation enabled by Cras has no bearing to RDBMS access of solved cubes. Cras's system simply has no place to fit within Greenfield's system.

Since Cras's system is built on top of either a multidimensional or relational data source, there is no need for a translation system between multidimensional and relational data. Thus, Greenfield's contribution of presenting a RDBMS interface to multidimensional data would provide no benefit to the system of Cras, which can access either type of data directly. Cras, ¶ [0009].

Given the lack of connection between the disclosures of Greenfield and Cras, Applicants respectfully submit that a person of ordinary skill in the art would not be motivated to make such a combination. A person of ordinary skill would believe that the combination would be either non-functional or without any purpose.

The Rejection Over Hall in view of Cras Similarly Fails To Provide Disclosure of All Claim Limitations

Claims 3, 6-10, 14-22, and 31 have also been rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,675,785, issued to Hall et al. ("Hall") and further in view of Cras. Applicants respectfully traverse these rejections.

Hall does not disclose any teaching whatsoever regarding multidimensional data sources or the generation of multidimensional database queries, as such, it is inapplicable art. Thus, Hall can not be used for the proposition that it discloses anything related to multidimensional database queries. Cras, as discussed above, fails to teach or suggest all of the limitations of the claimed invention. Thus, neither Hall nor Cras, alone or in combination, teach or suggest all of the limitations of the claimed invention.

For at least these reasons, Applicants submit that neither Greenfield nor Cras nor Hall, alone or in any combination, provide disclosure of all the limitations of independent claims 3, 19, 21, and 31, and dependent claims 4-18, 20, and 22, and that these claims are in condition for allowance. Applicants therefore respectfully request the Examiner's reconsideration and withdrawal of the final rejections to these claims and an indication of the allowability of same.

CONCLUSION

In view of the amendments and remarks set forth herein, the application and the claims therein are believed to be in condition for allowance without any further examination and a notice to that effect is solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the Examiner is invited to telephone the undersigned.

If any extensions of time under 37 C.F.R. § 1.136(a) are required in order for this submission to be considered timely, Applicant hereby petitions for such extensions. Applicant also hereby authorizes that any fees due for such extensions or any other fee associated with this submission, as specified in 37 C.F.R. § 1.16 or § 1.17, be charged to Deposit Account 502306.

Respectfully submitted,

/Jonathan N. Geld/

Jonathan N. Geld
Attorney for Applicants
Reg. No. 44,702
(512) 439-5090 [Phone]
(512) 439-5099 [Fax]